

United States Environmental Protection Agency
Office of Enforcement and Compliance Assurance
Office of Criminal Enforcement, Forensics, and Training

NEICVP1048E01

**CONSENT DECREE IMPLEMENTATION
INSPECTION RESULTS**

Phillips 66 - Roxana, Illinois

NEIC Project No.: VP1048

December 2014

Project Manager:

Ken Garing

Other Contributors:

Doreen Au

Prepared for:

U.S. EPA Region 5

77 W Jackson Blvd
Chicago, Illinois 60604

Authorized for Release by:

Craig Kubik, Field Branch Chief

NATIONAL ENFORCEMENT INVESTIGATIONS CENTER
P.O. Box 25227
Bldg 25, Denver Federal Center
Denver, Colorado 80225

INTRODUCTION

The U.S. Environmental Protection Agency (EPA) has negotiated consent decrees with a number of refining companies. The purpose of these consent decrees is to reduce emissions and help ensure compliance with environmental regulations. Four major Clean Air Act issues are addressed in the consent decrees: new source review/prevention of significant deterioration (NSR/PSD); sulfur recovery plants/flaring; emission standards for benzene waste operations in the National Emissions Standards for Hazardous Air Pollutants (Benzene Waste Operations NESHAP or BWON); and leak detection and repair (LDAR) provisions. As part of an EPA Region 5 and Headquarters effort, NEIC evaluated the performance of the Phillips 66 Wood River refinery, located in Roxana, Illinois (hereafter Phillips 66), in meeting the BWON terms and conditions set forth in its consent decree with EPA lodged on January 27, 2005 and entered on December 5, 2005.

INSPECTION SUMMARY

The inspection was conducted June 16 through 19, 2014, by NEIC inspectors Ken Garing and Doreen Au. Inspection assistance was provided by Virginia Galisky and Constantious Loukerious from EPA Region 5. Credentials were presented to Brian Wulf, Environmental Director for Wood River Refinery. Phillips 66 personnel presented a general overview of facility operations and provided detailed information on environmental systems related to the Consent Decree. EPA personnel performed field sampling for the BWON requirements, in accordance with NEIC procedures and NEIC's quality system.

FACILITY BACKGROUND

Phillips 66 refines approximately 330,000 barrels of oil per day into gasoline, jet and diesel fuels, and other petroleum products. The Phillips 66 refinery has a total annual benzene (TAB) quantity from aqueous wastes at the entire facility (both controlled and uncontrolled) of greater than 10 Megagrams per year (Mg/yr). Therefore, the refinery is subject to the benzene emission control provisions of the BWON regulation. Of the available compliance alternatives, the Phillips 66 refinery has selected the compliance option specified by 40 CFR Part 61.342(e) which is commonly referred to as the 6 Mg compliance option (6 Mg). Under this alternative and in accordance with the Consent Decree, Phillips 66 must sample quarterly all uncontrolled waste streams containing greater than 0.05 Mg/yr of benzene and show that the resulting benzene quantity of those waste streams is equal to or less than 6.0 Mg/yr. The refinery is required to calculate quarterly uncontrolled benzene quantities and provide explanations and/or take measures if the quarterly values exceed 1.5 Mg. The first half 2014 semi-annual report indicated that the refinery has exceeded the 1.5 Mg quarterly EOL requirement.

SUMMARY OF FINDINGS

Based on inspection observations, discussions with Phillips 66 personnel, results of field monitoring, and review of documentation, the following inspection results/areas of noncompliance (AON) and areas of concern (AOC) associated with the Consent Decree were identified. Areas of concern are inspection observations of potential problems that could result in environmental harm, noncompliance with permit or regulatory requirements, or are associated with pollution prevention issues.

<i>Program / CD Citation</i>	<i>Requirement</i>	<i>NEIC Evaluation Results</i>	<i>AOC</i>	<i>AON</i>
<i>BWON</i>				
N. 172. c	On the Date of Lodging, Phillip 66 Alliance, Borger, LAR Wilmington, Sweeny, and Wood River (including Distilling West) Refineries will comply with the compliance option set forth at 40 C.F.R. § 61.342(e) (the "6 BQ compliance option");	The Wood River refinery has elected to comply with the 6 benzene quantity (BQ) compliance option [40 CFR. § 61.342(e)].	<input type="checkbox"/>	<input type="checkbox"/>
N. 173	Commencing on the Date of Entry of the Consent Decree and continuing through termination, Phillips 66 will not change the compliance status of any Refinery from the 6 BQ compliance option to the 2 Mg compliance option. If at any time from the Date of Lodging of the Consent Decree through its termination, the Rodeo or Santa Maria Refineries are determined to have a TAB equal to or greater than 10 Mg/yr, Phillips 66 will utilize the 6 BQ compliance option. Phillips 66 will consult with EPA and the Applicable Co-Plaintiff before making any change in compliance strategy not expressly prohibited by this Paragraph 173. All changes must be undertaken in accordance with the regulatory provisions of the Benzene Waste Operations NESHAP.	The Wood River refinery has elected to comply with the 6 BQ compliance option [40 C.F.R. § 61.342(e)]. The refinery has used this compliance option since the effective date of the Consent Decree.	<input type="checkbox"/>	<input type="checkbox"/>
N. 175	By no later than September 30, 2005, for the Bayway, Borger, Ferndale, LAR Carson, Rodeo and Santa Maria Refineries, Phillips 66 will complete a review and verification of each Covered Refinery's TAB and each Covered Refinery's compliance with the applicable compliance option. For each Covered Refinery, Phillips 66's Phase One review and verification process will include, but not be limited to:	<p>The on-site review and verification evaluation was conducted in January 2006; however, the third-party report is dated May 26, 2006. It cannot be verified if the evaluation was completed by the required date of March 31, 2006.</p> <p>The review and verification report was submitted to EPA on May 26, 2006 (attachment).</p>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
N. 175. a-d.	Phillips 66's Phase One review and verification process will include, but not be limited to: (a) an identification of each waste stream that is required to be included in the Covered Refinery's TAB (e.g., slop oil, tank water draws, spent caustic, desalter rag layer dumps, desalter vessel process sampling points, other sample wastes, maintenance wastes, and turnaround wastes (that meet the definition of waste under Subpart FF)); <input type="checkbox"/> (b) a review and identification of the calculations and/or measurements used to determine the flows of each waste stream for the purpose of	<p>The Phase One review and verification evaluation did address: (a) an identification of each waste stream; (b) a review and identification of the calculations and/or measurements used to determine the flows; (c) an identification of the benzene concentration in each waste stream; and (d) an identification of whether or not the stream is controlled.</p> <p>Prior to conducting the review and verification evaluation, the refinery purchased portions of an adjacent refinery. The acquired processing units (delayed coker and crude distillation) are referred to as Distilling West. These processing units and</p>	<input type="checkbox"/>	<input type="checkbox"/>

<i>Program / CD Citation</i>	<i>Requirement</i>	<i>NEIC Evaluation Results</i>	<i>AOC AON</i>
<i>BWON</i>	ensuring the accuracy of the annual waste quantity for each waste stream; <input type="checkbox"/> <input type="checkbox"/> (c) an identification of the benzene concentration in each waste stream, including sampling for benzene concentration at no less than 10 waste streams per Covered Refinery consistent with the requirements of 40 C.F.R. § 61.355(c)(1) and (3); provided however, that previous analytical data or documented knowledge of waste streams may be used in accordance with 40 C.F.R. § 61.355(c)(2), for streams not sampled; and <input type="checkbox"/> <input type="checkbox"/> (d) an identification of whether or not the stream is controlled consistent with the requirements of Subpart FF.	associated piping networks were included in the review and verification evaluation.	
N. 176	By no later than two (2) months after the dates set forth in Paragraph 175, Phillips 66 will submit to EPA and the Applicable Co-Plaintiff a Benzene Waste Operations NESHAP Compliance Review and Verification report ("BWON Compliance Review and Verification Report") for each Covered Refinery that sets forth the results of Phase One, including but not limited to the items identified in (a) through (d) of Paragraph 175.	The required submittal date for the BWON Compliance Review and Verification report was May 31, 2006, which corresponds to the March 31, 2005, date plus two months. The BWON Compliance Review and Verification report was provided to EPA on May 26, 2006. A copy of the review and verification plan is attached.	<input type="checkbox"/> <input type="checkbox"/>
N. 177	Based on EPA's review of the BWON Compliance Review and Verification Reports, by no later than ninety (90) days after receipt of Phillips 66's submission of the report required by Paragraph 176, EPA may select up to twenty (20) additional waste streams at each Covered Refinery for sampling for benzene concentration. Phillips 66 will conduct the required sampling and submit the results to EPA within sixty (60) days of receipt of EPA's request. Phillips 66 will use the results of this additional sampling to reevaluate the TAB and the uncontrolled benzene quantity and to amend the BWON Compliance Review and Verification Report, as needed. To the extent that EPA requires Phillips 66 to sample a waste stream as part of the Phase Two review that Phillips 66 chose to sample as part of the Phase One review, Phillips 66 may average the results of the two sampling events. Phillips 66 will submit an amended BWON Compliance Review and Verification Report within one-hundred twenty (120) days following the	EPA did not require the refinery to conduct additional sampling.	<input type="checkbox"/> <input type="checkbox"/>

<i>Program / CD Citation</i>	<i>Requirement</i>	<i>NEIC Evaluation Results</i>	<i>AOC</i>	<i>AON</i>
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	date of the completion of the required Phase Two sampling, if Phase Two sampling is required by EPA. This amended BWON Compliance Review and Verification Report will supersede and replace the originally-submitted BWON Compliance Review and Verification Report. If Phase Two sampling is not required by EPA, the originally-submitted BWON Compliance Review and Verification Report will constitute the final report.			
N. 178	If the results of the BWON Compliance Review and Verification Report indicate that a Covered Refinery's most recently-filed TAB report does not satisfy the requirements of Subpart FF, Phillips 66 will submit, by no later than one-hundred twenty (120) days after completion of the BWON Compliance Review and Verification Report, an amended TAB report to the applicable state agency. Phillips 66's BWON Compliance Review and Verification Report will be deemed an amended TAB report for purposes of Subpart FF reporting to EPA.	The refinery considers the TAB report submitted as part of the May 26, 2006, review and verification report as an amended TAB report. The information contained in the May 26, 2006, submittal meets the requirements for annual TAB reports.	<input type="checkbox"/>	<input type="checkbox"/>
N. 179	If the results of the BWON Compliance Review and Verification Report indicate that Phillips 66 is not in compliance with the 2 Mg compliance option at the Bayway, Ferndale, or Trainer Refineries or the 6 BQ compliance option at the Alliance, Borger, LAR Carson, LAR Wilmington, Sweeny or Wood River Refineries, then, for each such Refinery not in compliance, Phillips 66 will submit to EPA and the Applicable Co-Plaintiff, by no later than one-hundred twenty (120) days after completion of the BWON Compliance Review and Verification Report, a plan that identifies with specificity the compliance strategy and schedule that Phillips 66 will implement to ensure that subject Covered Refinery complies with the applicable compliance option as soon as practicable.	<p>The single compliance issue identified during the review and verification process identified the monitoring requirements for Tank V-1621 handling materials for the motor engine laboratory. Tank V-1621 was included in the monitoring program in the second quarter of 2006. Therefore, a compliance plan was not developed.</p> <p>This tank has been in the monitoring program since March 2006. A listing of components monitored at V-1621 is attached.</p>	<input type="checkbox"/>	<input type="checkbox"/>
N. 180	If the results of the BWON Compliance Review and Verification Report indicate that the Rodeo or Santa Maria Refinery has a TAB of over 10 Mg/yr, Phillips 66 will submit to EPA, by no later than one-	This paragraph is not applicable to the Wood River refinery.	<input type="checkbox"/>	<input type="checkbox"/>

<i>Program / CD Citation</i>	<i>Requirement</i>	<i>NEIC Evaluation Results</i>	<i>AOC AON</i>
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BWON

hundred eighty (180) days after completion of the BWON Compliance Review and Verification Report, a plan that identifies with specificity: (a) the actions that the Refinery will take to ensure that, by no later than one-hundred eighty (180) days after submission of the plan, the Refinery's TAB, for the duration of this Consent Decree, remains below 10 Mg/yr; or (b) if the Refinery cannot ensure a consistent TAB of below 10 Mg/yr within one-hundred eighty (180) days, then the compliance strategy and schedule that Phillips 66 will implement to ensure that the subject Refinery complies with the 6 BQ compliance option by no later than one year after submission of the plan.

N. 181	Any plans submitted pursuant to Paragraphs 179 and 180 will be subject to the approval of, disapproval of, or modification by EPA, which will act in consultation with the Applicable Co-Plaintiff. Within sixty (60) days after receiving any notification of disapproval or request for modification from EPA, Phillips 66 will submit to EPA and the Applicable Co-Plaintiff a revised plan that responds to all identified deficiencies. Unless EPA responds to Phillips 66's revised plan within sixty (60) days, Phillips 66 will implement the plan.	A compliance plan was not required; therefore, this paragraph is not applicable.	<input type="checkbox"/> <input type="checkbox"/>
N. 182	By no later than thirty (30) days after completion of the implementation of all actions, if any, required pursuant to Paragraphs 179 and 180 to come into compliance with the applicable compliance option, Phillips 66 will submit its certification and a report to EPA and the Applicable Co-Plaintiff that, as to the subject Refinery, the Refinery complies with the Benzene Waste Operations NESHAP.	The July 28, 2006, certification for compliance with the Benzene Waste Operations NESHAP was submitted with the 2006 first half semi-annual report dated July 28, 2006. A copy of the certification is attached.	<input type="checkbox"/> <input type="checkbox"/>
N. 183 -190	Phillips 66 will comply with the requirements of Paragraphs 183 - 194 at all locations at the Covered Refineries where (a) carbon canister(s) is (are) utilized as a control device under the Benzene Waste Operations NESHAP. To the extent that any applicable state or local rule, regulation, or permit contains more	The refinery does not routinely use carbon canisters as control devices. Carbon canisters are used in for short-term applications, as discussed in the paragraph 191.	<input type="checkbox"/> <input type="checkbox"/>

<i>Program / CD Citation</i>	<i>Requirement</i>	<i>NEIC Evaluation Results</i>	<i>AOC</i>	<i>AON</i>
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N. 191	Phillips 66 may utilize properly sized single canisters for short-term operations such as with temporary storage tanks or as temporary control devices. For canisters operated as part of a single canister system, breakthrough is defined for purposes of this Decree as any reading of VOC or benzene above background. Beginning no later than March 1, 2005, Phillips 66 will monitor for breakthrough from single carbon canisters each business day (Monday through Friday, excluding legal holidays) there is actual flow to the carbon canister.	Carbon canisters are only used as the control devices for short-term applications. Specifically, emissions from roll-off-boxes/frac tanks used during tank cleaning activities are controlled using carbon canisters. Dual carbon canisters (rather than single canister as required) are used to control these temporary waste benzene sources. Monitoring for breakthrough at 50 ppm VOC is conducted between the canisters on a daily basis. Upon detection of breakthrough, the canisters are replaced within 8 hours, as referenced in paragraph 189.	<input type="checkbox"/>	<input type="checkbox"/>
N. 191	For canisters operated as part of a single canister system, breakthrough is defined for purposes of this Decree as any reading of VOC or benzene above background.	Not applicable because carbon canisters are not used as a control device.	<input type="checkbox"/>	<input type="checkbox"/>
N. 192	Phillips 66 will replace the single carbon canister with a fresh carbon canister, discontinue flow, or route the stream to an alternate, appropriate device immediately when breakthrough is detected. For this Paragraph 192, "immediately" will mean eight (8) hours for canisters of 55 gallons or less and twenty-four (24) hours for canisters greater than 55 gallons. If, under this Paragraph, flow to a single canister is discontinued, such canister may not be placed back into BWON vapor control service until it has been appropriately regenerated.	Not applicable because carbon canisters are not used as a control device.	<input type="checkbox"/>	<input type="checkbox"/>
N. 193	Phillips 66 will maintain a supply of fresh carbon canisters at each Refinery at all times.	Fresh carbon is maintained at the refinery.	<input type="checkbox"/>	<input type="checkbox"/>
N. 195	By no later than September 30, 2005, Phillips 66 will modify existing management of change procedures or develop a new program to annually review process and project information for each Refinery, including but not limited to construction projects, to ensure that all new benzene waste streams are included in each Refinery's waste stream inventory during the life of the Consent Decree.	The refinery has established procedures to ensure that process changes affecting the BWON compliance will be reviewed by environmental personnel. A copy of the Wood River Management of Change overview and instructions are attached.	<input type="checkbox"/>	<input type="checkbox"/>

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N. 196	Phillips 66 will conduct audits of all laboratories that perform analyses of Phillips 66's benzene waste NESHAP samples to ensure that proper analytical and quality assurance/quality control procedures are followed.	Laboratory audits have been conducted as discussed in the following sections.	<input type="checkbox"/>	<input type="checkbox"/>
N. 197	By no later than September 30, 2005, COPC will complete at least three audits of laboratories used by it. By March 31, 2006, COPC will complete audits of all other laboratories used by it.	The refinery uses Teklab, Inc. to conduct benzene waste analyses. The first Consent Decree-required audit of the laboratory was conducted on October 20, 2005. This audit was conducted in the required timeframe.	<input type="checkbox"/>	<input type="checkbox"/>
N. 198	If Phillips 66 has completed an audit of any laboratory on or after June 30, 2003, Phillips 66 will not be required to perform additional audits of those laboratories pursuant to Paragraph 197, above.	Not applicable. The refinery did not rely on audits conducted prior to signing the Consent Decree.	<input type="checkbox"/>	<input type="checkbox"/>
N. 199, 197	During the life of this Consent Decree, Phillips 66 will conduct subsequent laboratory audits, such that each laboratory is audited every two (2) years. After March 31, 2006, Phillips 66 will audit any new laboratory to be used for analyses of benzene waste NESHAP samples prior to such use.	The refinery conducted a second audit of the laboratory on August 23, 2007. This audit was conducted within the required two-year timeframe. Subsequent laboratory audits were conducted on August 19, 2009, July 6, 2011, and July 17, 2013.	<input type="checkbox"/>	<input type="checkbox"/>
N. 200	Phillips 66 may retain third parties to conduct these audits or use audits conducted by others as its own, but the responsibility and obligation to ensure that its Refineries comply with this Consent Decree and Subpart FF are solely Phillips 66's.	The Wood River refinery relies on TriHydro Inc., Laramie, Wyoming, to conduct the laboratory audits.	<input type="checkbox"/>	<input type="checkbox"/>
N. 201	Phillips 66 will include the benzene generated by such spills in the TAB and in the uncontrolled benzene quantity calculations for each Refinery in accordance with the applicable compliance option as required by Subpart FF.	The refinery includes spills in the TAB report and the uncontrolled benzene quantity.	<input type="checkbox"/>	<input type="checkbox"/>
N. 201	Beginning on the Date of Entry, for each spill at each Covered Refinery, Phillips 66 will review such spills to determine if more than 10 pounds of benzene waste was generated in any twenty-hour (24) hour period.	The refinery calculates the benzene content in any spill and includes the calculated amount in the TAB report and the uncontrolled benzene quantity calculations.	<input type="checkbox"/>	<input type="checkbox"/>
N. 201	Phillips 66 will include the benzene generated by such spills in the TAB and in the uncontrolled benzene quantity calculations for each Refinery in accordance with the applicable compliance	The refinery includes spills in the TAB report and the uncontrolled benzene quantity calculations.	<input type="checkbox"/>	<input type="checkbox"/>

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	option as required by Subpart FF.			
N. 202	By no later than April 1, 2005, Phillips 66 will develop and begin implementation of annual (i.e., once each calendar year) training for all employees asked to draw benzene waste samples at each of the Covered Refineries.	In March 2005, the refinery initiated training of all employees collecting benzene samples. Annual refresher training is conducted by Trihydro Inc., with the most recent training occurring in May 2014. The initial training roster is attached.	<input type="checkbox"/>	<input type="checkbox"/>
N. 203	By no later than June 30, 2005, for all Covered Refineries except Rodeo and Santa Maria, Phillips 66 will complete the development of standard operating procedures for all control equipment used to comply with the Benzene Waste Operations NESHAP.	<p>The refinery completed development of standard operating procedures of BWON control equipment on June 30, 2005. These procedures are periodically updated. The most current procedures for certain BWON equipment are attached. Procedure EC 1.13 specifies the monitoring requirements for the CPIs and DNF units.</p> <p>The procedure requires quarterly monitoring for No Detectable Emissions (NDE) of the CPIs. Additionally, the procedure requires annual NDE monitoring for the DNFs.</p> <p>Monitoring by EPA Region 5 personnel identified numerous deficiencies within the covers of the CPIs and DNFs. A Notice and Finding of Violation was issued to the Wood River refinery based on this monitoring.</p>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
N. 203	By no later than March 31, 2006, Phillips 66 will complete an initial training program regarding these procedures for all operators assigned to this equipment. Comparable training will also be provided to any persons who subsequently become operators, prior to their assumption of this duty. Until termination of this Decree, "refresher" training in these procedures will be performed at a minimum on a three (3) year cycle.	The refinery implemented a computer based training (CBT) program to assist field personnel on the proper operation and use of benzene control equipment. Initial training was completed by March 2006. Subsequent training has been conducted on a three-year cycle.	<input type="checkbox"/>	<input type="checkbox"/>
N. 205	As part of Phillips 66's training program, Phillips 66 must ensure that the employees of any contractors hired to perform the requirements of Paragraphs 202 and 203 are properly trained to implement all applicable provisions of this Section V.N.	All new employees are required to complete benzene waste control equipment training.	<input type="checkbox"/>	<input type="checkbox"/>
N. 206	By no later than September 30, 2005, for the Bayway, Borger, Ferndale, LAR Carson, Rodeo and Santa Maria Refineries, and by no later than March 31, 2006, for the Alliance, LAR Wilmington, Sweeny, Trainer, and Wood River Refineries,	The refinery submitted the slop oil schematic on March 30, 2006, as required by the Consent Decree. EPA did not request Phillips 66 to submit a revised waste/slop oil schematic.	<input type="checkbox"/>	<input type="checkbox"/>

<i>Program / CD Citation</i>	<i>Requirement</i>	<i>NEIC Evaluation Results</i>	<i>AOC</i>	<i>AON</i>
<i>BWON</i>				
	Phillips 66 will submit to EPA and the Applicable Co-Plaintiff schematics for each Refinery that: (a) depict the waste management units (including sewers) that handle, store, and transfer waste, slop, or off-spec oil streams; (b) identify the control status of each waste management unit; and (c) show how such oil is transferred within the Refinery. Phillips 66 will include with the schematics a quantification of all uncontrolled waste, slop, or off-spec oil movements at the Refinery. If requested by EPA, Phillips 66 will submit to EPA within ninety (90) days of the request, revised schematics regarding the characterization of these waste, slop, off-spec oil streams and the appropriate control standards.			
N. 207	All waste management units handling non-exempt, non-aqueous benzene wastes, as defined in Subpart FF, will meet the applicable control standards of Subpart FF.	The refinery manages organic waste streams according to applicable Subpart FF control standards.	<input type="checkbox"/>	<input type="checkbox"/>
N. 208	For purposes of calculating each Refinery's TAB pursuant to the requirements of 40 C.F.R. § 61.342(a), Phillips 66 will include all waste/slop/off-spec oil streams that become "aqueous" until such streams are recycled to a process or put into a process feed tank (unless the tank is used primarily for the storage of wastes). Appropriate adjustments will be made to such calculations to avoid the double-counting of benzene. For purposes of complying with the 2 Mg or 6 BQ compliance option, all waste management units handling benzene waste streams will either meet the applicable control standards of Subpart FF or will have their uncontrolled benzene quantity count toward the applicable 2 Mg or 6 BQ limit.	All waste streams (including waste/slop/off-spec oil streams that become "aqueous") are managed in waste management units regulated by control standards of Subpart FF or have their uncontrolled benzene quantity count toward the applicable 6 Mg limit.	<input type="checkbox"/>	<input type="checkbox"/>
N. 209	Phillips 66 will submit to EPA for approval, with a copy to the Applicable Co-Plaintiff, benzene waste operations sampling plans designed to describe the sampling of benzene waste streams that Phillips 66 will undertake to estimate quarterly and annual TABs (for the Refineries with TABs of under 10 Mg/yr) or quarterly and annual uncontrolled benzene quantities (for the Refineries under the 6 BQ or 2 Mg compliance options).	The following sections discuss the sampling plan submitted by the refinery to comply with the 6 Mg compliance option.	<input type="checkbox"/>	<input type="checkbox"/>

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<i>BWON</i>				
N. 210	Phillips 66 will submit the sampling plans by no later than the following dates for the following Refineries: <input type="checkbox"/> LAR Wilmington, Sweeny, Trainer, and Wood River by 6/30/06	The Wood River sampling plan was submitted on June 29, 2006. A copy of the initial EOL sampling plan is attached.	<input type="checkbox"/>	<input type="checkbox"/>
N. 211. b. i.	Alliance, Borger, LAR Carson. LAR Wilmington, Rodeo, Sweeny, and Wood River (6 Mg. Compliance Option). The sampling plans for the Alliance, Borger, LAR Carson. LAR Wilmington, Rodeo, Sweeny, and Wood River Refineries will identify: All uncontrolled waste streams that count toward the 6 BQ calculation and contain greater than 0.05 Mg/yr of benzene; and	The June 29, 2006, Wood River sampling plan identifies how the refinery will assist in verifying compliance with the 6 Mg compliance option. The refinery samples uncontrolled streams that contain greater than 0.05 Mg/yr of benzene.	<input type="checkbox"/>	<input type="checkbox"/>
N. 211. b. ii	The proposed sampling locations and methods for flow calculations to be used in calculating projected quarterly and annual uncontrolled benzene quantity calculations under the terms of Paragraph 214. The Sampling plan will require Phillips to take, and have analyzed, in each calendar quarter, at least three representative samples from all waste streams identified in Subparagraph (b) (i) and all locations identified in Subparagraph (b) (ii).	Variations of the benzene concentration associated with one EOL sampling point have a dramatic impact on the calculated quarter quarterly EOL quantity. From 2006 through 2014, measured benzene concentrations from this location range from 5.5 parts per billion to 25.5 parts per million (attachment - Company Concentration). This four-order of magnitude concentration variation, combined with the fact that the vast majority of refinery wastewater (approximately 5,000 gallons per minute [gpm]) flows through this sample location are the primary reasons for the huge swings in the reported quarterly EOL calculations. This EOL sample point was originally designated as Lower Lift Station but was subsequently moved and redesignated as the master box location. Due to the large variations in the measured benzene concentrations at EOL 1, the refinery should consider more frequent or continuous sampling in order to provide a more representative benzene concentration. NEIC collected samples from six locations for comparison to historical concentrations reported by the refinery. The six locations include: Master box, Tank A-149, manhole 2, manhole 4, manhole 8, and distilling west process sewer sump. The concentrations identified in NEIC-collected samples, for all six sample locations, are within the historical range reported by the refinery. The NEIC laboratory report is attached.	<input checked="" type="checkbox"/>	<input type="checkbox"/>
N. 211. d	For any Covered Refinery that must	Not applicable to the Wood River refinery.	<input type="checkbox"/>	<input type="checkbox"/>

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<i>BWON</i>				
	implement a compliance plan under either Paragraph 179 or 180, Phillips 66 may submit a proposed sampling plan that does not include sampling points in locations within the Refinery that are subject to changes proposed in the compliance plan. To the extent that Phillips 66 believes that sampling at a Covered Refinery which will be under a compliance plan will not be effective until Phillips 66 completes implementation of the compliance plan, Phillips 66, by no later than sixty (60) days prior to the due date for the submission of the sampling plan, may ask for EPA's approval in postponing submitting a sampling plan and commencing sampling until the compliance plan is completed. Unless EPA provides its approval, Phillips 66 will submit a plan by the due date in Paragraph 210 .			
N. 212	Phillips 66 will implement the sampling required under each sampling plan during the first full calendar quarter after Phillips 66 submits the plan for the Refinery. Phillips 66 will continue to implement the sampling plan (i) unless and until EPA disapproves the plan; or (ii) unless and until Phillips 66 modifies the plan, with EPA's approval, under Paragraph 213.	Quarterly EOL sampling has been conducted since the third quarter of 2006. The Wood River refinery conducted quarterly sampling at the times outlined in the June 29, 2006, sampling plan.	<input type="checkbox"/>	<input type="checkbox"/>
N. 213. a	If changes in processes, operations, or other factors lead Phillips 66 to conclude that a sampling plan for a Covered Refinery may no longer provide an accurate basis for estimating that Refinery's quarterly or annual TABs or benzene quantities under Paragraph 214, then by no later than ninety (90) days after Phillips 66 determines that the plan no longer provides an accurate measure, Phillips 66 will submit to EPA and the Applicable Co-Plaintiff a revised plan for EPA approval. In the first full calendar quarter after submitting the revised plan, Phillips 66 will implement the revised plan. Phillips 66 will continue to implement the revised plan unless and until EPA disapproves the revised plan.	Four revised EOL plans have been submitted dated September 27, 2007, May 11, 2009, October 3, 2011, July 19, 2012, and June 13, 2014. The 2007 revision moved the sample location for the lower lift station to master box. This change was positive in two aspects: first, the master box location is located upstream and, therefore, there will be less chance for benzene volatilization, and second, a number of controlled benzene wastes were discharged into the controlled lower lift station, resulting in the subtraction calculations for various non-routine waste benzene streams. The 2009, 2011, 2012, and 2014 revisions entailed changes to reflect the addition or removal of certain benzene waste streams.	<input type="checkbox"/>	<input type="checkbox"/>
N. 213. b	By no later than sixty (60) days after completing implementation of the project identified in Paragraph 268, Phillips 66 will	Not applicable to the Wood River refinery.	<input type="checkbox"/>	<input type="checkbox"/>

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<i>BWON</i>	notify EPA and the NJDEP about whether a revised sampling plan for the Bayway Refinery is necessary. If a revised plan is necessary, the notice will include the revised plan for approval by EPA. In the first full calendar quarter after submitting the revised plan, Phillips 66 will implement the revised plan. Phillips 66 will continue to implement the revised plan unless and until EPA disapproves the revised plan.			
N. 213. c	After two (2) years of implementing a sampling plan, Phillips 66 may submit a request to EPA for approval, with a copy to the Applicable Co-Plaintiff, to revise a Covered Refinery's sampling plan, including sampling frequency. EPA will not unreasonably withhold its consent. Phillips 66 will not implement any proposed revisions under this Subparagraph until EPA provides its approval.	The refinery has not requested modifications to the frequency of sampling.	<input type="checkbox"/>	<input type="checkbox"/>
N. 214	At the end of each calendar quarter and based on sampling results and approved flow calculations, Phillips 66 will calculate a quarterly and projected annual: (i) TAB for the Rodeo and Santa Maria Refineries; and (ii) uncontrolled benzene quantity for the remaining Covered Refineries. In making this calculation, Phillips 66 will use the average of the three samples collected at each sampling location. If these calculations do not identify any potential violations of the benzene waste operations NESHAP, Phillips 66 will submit these calculations in the reports due under Section IX of this Decree.	The refinery calculates quarterly uncontrolled benzene quantities and submits these calculations with the semi-annual reports. A summary table with the reported quarterly EOL values is attached.	<input type="checkbox"/>	<input type="checkbox"/>
N. 215 b	Except as set forth in Paragraph 216, Phillips 66 will implement corrective measures at the applicable Covered Refinery if: For the Alliance, Borger, LAR Carson, LAR Wilmington, Rodeo, Sweeny, or Wood River Refineries, the quarterly uncontrolled benzene quantity equals or exceeds 1.5 Mg or the projected annual uncontrolled benzene quantity equals or exceeds 6 Mg for the then-current compliance year.	The calculated quarterly uncontrolled benzene quantity has exceeded the 1.5 Mg/yr limit on nine occasions (attachment). The quarterly exceedances were reported in the 3rd quarter 2006, 1st quarter 2008, 2nd quarter 2008, 3rd quarter 2010, 2nd quarter 2011, 3rd quarter 2011, 3rd quarter 2013, 1st quarter 2014, and 2nd quarter 2014. The explanations and corrective actions associated with each exceedance are presented in paragraphs 216 or 218.	<input checked="" type="checkbox"/>	<input type="checkbox"/>
N. 216	If Phillips 66 can identify the reason(s) in any particular calendar quarter that the quarterly and projected annual calculations result in benzene quantities in excess of	The quarterly exceedances were reported in the 3rd quarter 2006, 3rd quarter 2010, and 3rd quarter 2013 were all attributed to have benzene concentrations measured at the master box or	<input type="checkbox"/>	<input type="checkbox"/>

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those identified in Paragraph 215, and Phillips 66 can state that it does not expect that reason or reasons to recur, then Phillips 66 may exclude the benzene quantity attributable to the identified reason(s) from the projected calendar year quantity. If that exclusion results in no potential violation of the Benzene Waste Operation NESHAP, Phillips 66 will not be required to implement corrective measures under Paragraph 217, and Phillips 66 may exclude the uncontrolled benzene attributable to the identified reason(s) in determining the applicability of Paragraph 218. At any time that Phillips 66 proceeds under this Paragraph, Phillips 66 will describe how it satisfied the conditions in this Paragraph in the reports due under Section IX of this Decree.

lower lift station. The 3rd quarter 2006 was the first quarter for which EOL sampling was conducted. The compliance plan associated for this event identified seven actions taken to reduce the benzene in the sewer (attachment).

For the second event (3rd quarter 2010), the elevated EOL value was attributed to activities associated with benzene extraction unit (attachment).

The third event (3rd quarter 2013) the elevated EOL value was attributed to limited sampling at the master box.

N. 217

If Phillips 66 meets one or more conditions in Paragraph 215 for implementing corrective measures, then by no later than sixty (60) days after the end of the calendar quarter in which one or more of the conditions were met, Phillips 66 will submit a compliance assurance plan to EPA for approval, with a copy to the Applicable Co-Plaintiff. In that compliance assurance plan, Phillips 66 will identify the cause(s) of the potentially-elevated benzene quantities, all corrective actions that Phillips 66 has taken or plans to take to ensure that the cause(s) will not recur, and the schedule of actions that Phillips 66 will take to ensure that the subject refinery complies with the Benzene Waste Operations NESHAP for the calendar year. Phillips 66 will implement the plan unless and until EPA disapproves.

The compliance assurance plans associated with single quarter EOL exceedances are discussed in the preceding paragraph.

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N. 218

If, in two consecutive quarters, at least one of the conditions in Paragraph 215 exists at a particular Refinery, then Phillips 66 will retain a third-party contractor during the third calendar quarter to undertake a TAB study and compliance review at that Refinery. By no later than ninety (90) days after Phillips 66 receives the results of the third-party TAB study and compliance review, Phillips 66 will submit the results to EPA and the Applicable Co-Plaintiff and submit a plan and schedule for remedying

A third-party contractor was required on three occasions when two consecutive EOL quarterly values exceeded 1.5 Mg/yr. The first event occurred in the 1st and 2nd quarters of 2008. The refinery identified the suspected cause of the excess quarterly values prior to retaining a third-party contractor. As the remedy, the thermal relief valve on benzene barge loading pipeline was redirected from the master box to the product tank (attachment). The uncontrolled benzene associated with this discharge was reported to contribute 1.9 Mg towards the total reported 5.0

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any deficiencies identified in the third-party study and compliance review. Phillips 66 will implement the plan unless and until EPA disapproves.

BQ total.

The causes of the second event for the 2nd and 3rd quarters of 2011 EOL results was addressed in the compliance assurance report submitted on June 11, 2012. The elevated benzene concentrations measured in the master box were attributed to water draws from V-2707 and the temporary draining of benzene waste from the C-7 tops accumulator. Both these vessels are operated within the benzene extraction unit.

The third event occurred in the 1st and 2nd quarters of 2014 and was attributed to a thermal relief valve associated with barge loading activities (attachment). This event was similar to the first event in that a thermal relief valve caused the excess benzene. However, different barge pipelines were involved in the third event.

N. 219

The provisions of this Paragraph will apply to all Covered Refineries except the Rodeo and Santa Maria Refineries from September 30, 2005, through termination, and to the Rodeo and Santa Maria Refineries, if their TABs reach 10 Mg/yr, from such time as a compliance strategy under Paragraph 180 is implemented until termination of the Consent Decree: (a) Conduct monthly visual inspections of all Subpart FF water traps within the Refinery's individual drain systems; (b) Identify and mark all area drains that are segregated storm water drains; (c) On a weekly basis, visually inspect all Subpart FF conservation vents on process sewers for detectable leaks; reset any vents where leaks are detected; and record the results of the inspections. After two (2) years of weekly inspections, and based upon an evaluation of the recorded results, Phillips 66 may submit a request to the Applicable EPA Region to modify the frequency of the inspections. EPA will not unreasonably withhold its consent. Nothing in this Paragraph 219(c) will require Phillips 66 to monitor conservation vents on fixed roof tanks. Alternatively, for conservation vents with indicators that identify whether flow has occurred, Phillips 66 may elect to visually inspect such indicators on a monthly basis and, if flow is then detected, Phillips 66 will then visually inspect that indicator on a

The Wood River refinery operates one Subpart FF water trap, which is monitored on a monthly schedule.

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The refinery completed the required marking of the segregated storm water drains on September 30, 2005.

The CPIs are monitored on quarterly schedule.

Groundwater remediation activities are controlled in accordance with Subpart FF requirements, or the benzene quantity is included in the 6 BQ.

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weekly basis for four (4) weeks. If flow is detected during any two (2) of those four (4) weeks, Phillips 66 will install a carbon canister on that vent until appropriate corrective action(s) can be implemented to prevent such flow; (d) Conduct quarterly monitoring of the controlled oil-water separators in benzene service in accordance with the "no detectable emissions" provision in 40 C.F.R. § 61.347; and (e) Manage all groundwater remediation wastes that are covered by Subpart FF at each of its Refineries in appropriate waste management units under and as required by the Benzene Waste Operations NESHAP.

N. 220 a-i	At the times specified in the applicable provisions of this Section V.N, Phillips 66 will submit, as and to the extent required, the following reports to EPA and the Applicable Co-Plaintiff: (a) BWON Compliance Review and Verification Report (§ 176), as amended, if necessary (§ 177); (b) Amended TAB Report, if necessary (§ 178); (c) Plan for the Alliance, Bayway, Borger, Ferndale, LAR Carson, LAR Wilmington, Sweeny, Trainer and/or Wood River Refineries to come into compliance with the applicable compliance option, if the BWON Compliance Review and Verification Reports indicate non-compliance (§ 179); (d) Plan for the Rodeo and/or Santa Maria Refineries to come into compliance with the 6 BQ compliance option upon discovering that its TAB equals or exceeds 10 Mg/yr through the BWON Compliance Review and Verification Report (§ 180), or through sampling (§ 217); (e) Compliance certification, if necessary (§ 182); (f) Report certifying the completion of the installation of dual carbon canisters (§ 185); (g) Schematics of waste/slop/off-spec oil movements (§ 206), as revised, if necessary; (h) Sampling Plans (§ 211), and revised Sampling Plans, if necessary (§ 213); (i) Plan to ensure that uncontrolled benzene does not equal or exceed, as applicable, 2 or 6 Mg/yr (§ 217).	The reporting of the various information required in this paragraph is discussed in the appropriate paragraph.	<input type="checkbox"/> <input type="checkbox"/>
N. 221. a	Phillips 66 will submit the following information as part of the information submitted in either the quarterly report	This required information is included with quarterly reports.	<input type="checkbox"/> <input type="checkbox"/>

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	required pursuant to 40 C.F.R. § 61.357(d)(6) and (7) ("Section 61.357 Reports") (for all but the Rodeo and Santa Maria Refineries) or in the reports due pursuant to Section IX of this Decree: Sampling Results under Paragraphs 209 - 214. The report will include a list of all waste streams sampled, the results of the benzene analysis for each sample, and the computation of the quarterly and projected calendar year TAB (for the Rodeo and Santa Maria Refineries) and the quarterly and projected calendar year uncontrolled benzene quantity (for the remaining Covered Refineries);			
N. 221. b	Phillips 66 will submit the following information as part of the information submitted in either the quarterly report required pursuant to 40 C.F.R. § 61.357(d)(6) and (7) ("Section 61.357 Reports") (for all but the Rodeo and Santa Maria Refineries) or in the reports due pursuant to Section IX of this Decree: Training. Initial and/or subsequent training conducted in accordance with Paragraphs 202 - 205;	The initial and subsequent training information was submitted with the quarterly reports.	<input type="checkbox"/>	<input type="checkbox"/>
N. 221. c	Phillips 66 will submit the following information as part of the information submitted in either the quarterly report required pursuant to 40 C.F.R. § 61.357(d)(6) and (7) ("Section 61.357 Reports") (for all but the Rodeo and Santa Maria Refineries) or in the reports due pursuant to Section IX of this Decree: Laboratory Audits. Initial and subsequent audits conducted pursuant to Paragraphs 196 - 200, through the calendar quarter for which the quarterly report is due, including in each such report, at a minimum, the identification of each laboratory audited, a description of the methods used in the audit, and the results of the audit.	Laboratory audit information is submitted with the appropriate quarterly report.	<input type="checkbox"/>	<input type="checkbox"/>
N. 222	At any time after two years of reporting pursuant to the requirements of Paragraph 221, Phillips 66 may submit a request to EPA to modify the reporting frequency for any or all of the reporting categories of Subparagraphs 221(a), (b), and/or (c). This request may include a request to report the previous year's projected calendar year	Not evaluated.	<input type="checkbox"/>	<input type="checkbox"/>

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TAB and uncontrolled benzene quantity in the Section IX report due on January 31 of each year, rather than semi-annually on January 31 and July 31 of each year. Phillips 66 will not change the due dates for its reports under Paragraph 221 unless and until EPA approves Phillips 66's request.
